

X-1

Acid Plant

December 31, 1957

Elliot Company
120 Montgomery St.
San Francisco 4, California

Gentlemen:

On November 6, 1957, I wrote to you requesting information regarding interchange of sleeve bearings for our C-6 Speed Increasing Gear, Serial No. 1820 and 1250 HP Drive Motor, Serial No. 1S-9454. To date there has been no reply.

Since we anticipate opening the speed increasing gear to inspect the gears, bearings, etc. early in the spring, we want to be sure we have the proper spare parts to replace any worn ones. Hence, we would like to have the requested information at the earliest possible date.

Yours very truly,

Mark B. Nesbitt
FlueSolids and Acid Plant Foreman

MBN:jj

cc: Elliot Company
Jeanette, Pa.

December 18, 1957

Mr. William Wraith Jr.
The Anaconda Company
Room 1720, 25 Broadway
New York 4, New York

Dear Bill:

This will acknowledge your letter of December 5 regarding corrosion due to acid fumes etc.

We have always made a periodic inspection and have taken any and all preventive measures which we thought possible and advisable. This same program is being continued today.

We do appreciate your letter and we can thoroughly agree with you that this type of preventive work is well worthwhile.

With kindest regards,

Yours very truly,

AEM:EC

A. E. Millar

cc: RSN

THE ANACONDA COMPANY

25 Broadway

New York 4, N. Y.

December 5, 1957

OFFICE OF THE VICE PRESIDENT

IN CHARGE OF METALLURGICAL OPERATIONS

REC'D.	
DEC 9 1957	
REF'D TO	NOTED
	<i>[Signature]</i>
FILE:	

Mr. A. E. Millar, Manager
The Anaconda Company
Box 1000
Weed Heights, Nevada

agb
for me
check
before
the

Dear Bert:

Recently, a request for an appropriation for the replacement of structural steel was received from one of our plants. This steel was to replace the original structure that has been lost from corrosion. The new installation is to be covered with a plastic paint to prevent future corrosion.

The above replacement is an expensive one and it is, of course, wondered if an original covering of paint for corrosion protection has been applied and whether or not additional painting from time to time had been made to maintain the original structure so that a replacement at the present time would not be necessary.

There are undoubtedly places in your plant where a similar corrosive condition exists from acid fumes, gases, moisture, etc. It is important that these places have periodic inspections and very possibly have preventive measures taken to prevent their deterioration.

no inspect
periodically

Will you please have a competent member of your staff conduct an inspection of your plant for this purpose and make a formal report to you that can be made a matter of record. This inspection should be repeated at intervals that you decide are necessary so that the required maintenance is not forgotten or neglected. This file will serve as a reference for future requests for appropriations of the same type.

WW/jr

cc: Mr. E. S. McGlone
Mr. R. S. Newlin
Mr. R. B. Caples
Mr. C. M. Brinckerhoff

Very truly yours,

[Signature]
Wm. Wraith, Jr.
Assistant to Vice President

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REC'D.	
NOV 11	
REF'D TO	NOTED
FILE:	

November 12, 1957

Air Mail

Mr. H. R. Burch
Assistant General Manager
The Anaconda Company
Weed Heights, Nevada

Subject: Cottrell Electrical Precipitator Installation
Anaconda Copper Company
Yerington, Nevada
Purchase Order No. NY-913-5
Our Job No. 2111

Reference: H. R. Burch letter 10-31-57 to H.B. Alford
Concerning Collapsing Collecting Electrode Tubes

Dear Mr. Burch:

We have your letter of October 31, and have had our structural group review the questions you raised regarding the collapsing of tubes in your No. 2 precipitator.

We naturally are anxious to determine the cause of failure before replacements are made in order to avoid recurrence of the difficulties, but cannot find any obvious explanation.

The following is quoted from our structural engineer's report:

"The first reported failure of a single tube occurred in October 1955 and the matter was discussed with Mr. A. J. Gould at the plant by telephone. Mr. Gould believed that a weak spot might have existed in that particular tube since fabrication. He also stated at that time that a thorough inspection of the collecting tubes did not indicate presence of any flat spots, dents or out-of-roundness.

WESTERN PRECIPITATION CORPORATION

Subject: Anaconda Copper Company
Yerington, Nevada
Our Job No. 2111

Page 2

"Now it is reported that seven tubes have collapsed in the No. 2 precipitator. Actually, the fact that seven tubes out of four hundred subjected to approximately equal conditions have collapsed in this 4-year period would not normally be too disturbing, and it is just possible that only these tubes contained some defects of material or due to fabrication. ↗

"There is no apparent theoretical explanation for these failures, assuming initial tube roundness within the tolerances required by our erection procedure. So it must be reasoned that some greater ellipticity or out-of-roundness has developed, or that some unpredictable weakening of tube walls is taking place.

"Consideration of flexural stress in the tube wall with an assumed initial ellipticity indicates that an out-of-roundness of 95% (ratio of minor to major diameter) would induce a maximum flexural stress of 167#/square inch, which is within safe operating limits, whereas an ellipticity of 90%, (10 1/2" major diameter and 9 1/2" minor diameter), would produce a stress of 334#/square inch, which is above the recommended operating stress for the temperature. For larger ellipticity values, stress rapidly increases.

"It is difficult to conceive of these tubes having an initial out-of-roundness of more than 1/16" to 1/8", and before any recommendations can be made we feel that an accurate survey should be made of all accessible tubes at the plant to determine if any flattening is taking place as a function of time. Any out-of-roundness found could be eliminated by drawing a sizing plug of proper dimension through the pipes and their condition checked at a later date. ↗

"The 13" diameter tubes should be checked, for these would be the first to be expected to collapse from external pressure."

WESTERN PRECIPITATION CORPORATION

Subject: Anaconda Copper Company
Yerington, Nevada
Our Job No. 2111

Page 3

In answer to your specific questions, we doubt the practicability of replacement of a nest of tubes as a unit. The problem of handling and installing such an assembly in the existing precipitator without dismantling and rebuilding everything above and including the lower tube sheet appears insurmountable. OK

The suggestion that the exposed tubes be enclosed with an airtight cover permitting equalizing suction on outside of tubes is feasible and would unquestionably prevent tube collapse. We hesitate, however, to recommend such an installation until less expensive corrective measures have been exhausted. OK

The possibility that prolonged arcing has produced weak spots in some of the tube walls has been considered and we feel it would be of value if a section of one of the blanked-off tubes could be removed for inspection and wall thickness determination.

We regret our inability to suggest an immediate solution to the problem and await any further information you may be able to obtain.

Very truly yours,

WESTERN PRECIPITATION CORPORATION



R. P. Dedlow
Chief Design Engineer

RPD:ef

THE ANACONDA COMPANY

YERINGTON MINE

WEED HEIGHTS, NEVADA

November 11, 1957

aw

MEMORANDUM TO: MR. A. E. MILLAR

FROM: R. E. BENTLEY

SUBJECT: ESTIMATED COSTS FOR FABRICATING AND
INSTALLING A VACUUM SHROUD ON ONE UNIT
OF THE MIST PRECIPITATORS.

The following is a list of estimated materials and labor to fabricate and install a shroud around the 10" lead tubes that are exposed on the Mist Precipitators to equalize the vacuum and prevent the collapsing of the tubes.

16 Sheets of Black Iron size 48" x 120"	
@ \$12.51 per 100 weight	\$ 200.16
2 H.R. Plates size 1/4" x 48" x 96"	
@ \$ 9.75 per 100 weight	63.96
64' of 3/8" x 3" x 3" Angle Iron	
@ \$10.00 per 100 weight	55.00
64' of 1/8" x 1" x 1" Angle Iron	
@ \$10.00 per 100 weight	5.20
300 3/8" x 2" Machine Bolts	
@ \$ 3.25 per 100	9.75
200 Man hours	
@ \$ 2.44 per hour	488.00
Total cost per unit less the lead water tank and piping would be	<u>\$ 822.07</u>

R. E. Bentley
R. E. BENTLEY

REB:js

cc: HRB
AJG

November 6, 1957

Elliot Company
120 Montgomery Street
San Francisco 4, California

Gentlemen:

In our original order (EDR-90, NY Order 20190, Sept. 2, 1953) for spare parts for our No. 90H Type "P" Blower, C-6 Speed Increasing Gear and 1250 HP Drive Motor the following were included:

For Increasing Gear, Serial No. 1820:

Four (4) Bearing Assemblies, Cat. No. 625686-6

For Motor, Serial No. 1S-9454:

Two (2) Sleeve Bearings, Drwg. No. 8940-5

We have replaced the original sleeve bearings in the motor with these spare parts, but upon examination of the remaining spare bearings we find that all are marked "Drwg. #8940-5". Are these remaining spares suitable for installation in the Increasing Gear?

The only spare parts list we have for this equipment is contained in Blower Instruction Book No. 9630. It does not show the bearings by these numbers nor give information as to interchange. In view of this, we would appreciate having a more detailed parts list along with the information regarding use of our spares in the increasing gear.

Yours very truly,

Mark B. Nesbitt
FluoSolids and Acid Plant Foreman

MEN:mac

October 31, 1957

Western Precipitation Corporation
1000 West Nineth Street
Los Angeles 15, California

ATTENTION: Mr. H. B. Alford,
Chief Field Engineer

Gentlemen:

As you know we have had trouble with collapsing tubes in the Acid Mist Cottrells. We have had one collapsed tube in the No. 1 precipitator which was blown out and banded. This tube is still in operating condition. In the No. 2 precipitator we have had a total of 7 collapsed tubes. One of these was blown out and banded, however the other 6 are completely collapsed and blanked off. We have had no collapsed tubes in any of the other Acid Mist Cottrells.

We are greatly concerned about the collapsed tubes especially in the No. 2 precipitator. It has been suggested here that it might be possible to fabricate a complete tube nest and have it ready to be placed in the No. 2 precipitator as a unit. We would like to have your opinion of the feasibility of manufacturing this tube nest and replacing the tube in the precipitator as a unit. Could you give us a tentative estimate as to how much it would cost to build the tube assembly? We would also like to have any suggestions you might be able to make as to changes to be made in the new tube assembly. If you have any other suggestions they would be gratefully received.

Another suggestion made here is that the entire tube assembly be covered with an airtight cover so that a vacuum equal to the vacuum on the inside of the tube could be applied. It appears to us that the fabrication of this outer shell would entail considerable work and expense but that it might be practical. May we have your opinion as to the feasibility of this procedure.

We are seriously concerned over the collapsing of the tube in our No. 2 Acid Mist Cottrell and are anxious to receive your comments and suggestions.

Very truly yours,

H. R. Burch
Asst. Gen. Mgr.

HRB:zd

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January 11, 1957

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JAN 11 1957
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FILE: <i>Cond. Plant</i>

Cottrell

The Anaconda Company
Yerington Mine
Weed Heights, Nevada

Attention: Mr. A. J. Gould,
Plant Superintendent

Dear Mr. Gould:

I would like to offer my apologies for the tardy acknowledgement of your letter and information on the Hastelloy samples.

It is very interesting that the "Hastelloy F" proved to be most corrosion resistant in a sulphuric acid atmosphere. We have used "Hastelloy C" in some cases without too much success.

I have contacted the Haynes Stellite Company in Los Angeles and will place an order for 40 feet of 3/32" wire and a strip of 18 gauge plate 1 inch wide and 12 inches long for bearing surface to be placed under the wire on the electrode support. Otherwise, the wire will cut through the lead cover on the support. We will forward the wire and metal strip to you when received here. There should be adequate material to install two electrodes.

We would like to express our appreciation for your interest and cooperation in conducting this experiment.

We wish you and your staff a very prosperous New Year.

Very truly yours,

WESTERN PRECIPITATION CORPORATION

G. B. Wiford
Chief Field Engineer

HBA:jy